Assessment of livelihood opportunities among farmers in the Shai Osudoku district of the Greater Accra Region, Ghana

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Abstract: The objective of this study was to assess livelihood opportunities among smallholder farmers in five communities namely Dodowa, Ayikuma, Agomeda, Asutsuare and Doryum in the Shai Osudoku district of the Greater Accra Region, Ghana. One hundred and fifty (150) farmers were selected from the Shai Osudoku district using multi-stage sampling procedure. Purposive sampling was used to select these communities due to their intensive involvement in farming. Furthermore, simple random sampling technique was adopted to pick 150 farmers for the survey. The study showed that farm households were able to 'pair' their farming activities with alternative livelihoods without abandoning their primary livelihoods, which is farming. The income levels of farmers from their primary livelihood activities were comparatively low with majority, 82.7%, earning GH₵100 or less every month compared with fewer farmers, 13.3 %, earning above GH₵ 150. However, more than half of farmers (58%) earned above GH₵ 150 every month from their alternative livelihoods. Again, farmers who decided to undertake their primary and alternative livelihoods concurrently have seen a rise in the level of their income and accordingly contributing to the reduction of income poverty among rural farm households.

Keywords: Ghana; livelihoods; poverty reduction; smallholder farmers.

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1 Introduction

It is widely recognised that majority 70% of persons in developing countries like Ghana reside in rural communities and obtain their source of living from agriculture. Poverty in the country is chiefly a rural occurrence like any other country south of the Sahara desert. Of the 35% of Ghanaians categorised as poor, 75% are found in the rural areas. Poverty in rural Ghana is projected to contribute nearly 90% of national poverty (World Bank, 1995).

Poverty incidence in the Greater Accra Region was estimated to be 11% in 2005/06 having declined significantly to 6.6 % in 2015/16. Despite Greater Accra recording the minimal poverty rate in Ghana, poverty is intense in two districts; Shai Osudoku (55.1%) and Ningo Prampram (31.2%) [Ghana Statistical Service (GSS), 2015]. Shai Osudoku contributed the highest (40.1), indicating that it is the only district with inequality above the regional average of 37.6. Aside the geographical pattern, it is also imperative to map poverty trends to the economic activities in which family units undertook. In 2005/06 specifically, poverty was highest by far among crop farmers. Further, their contribution to the national prevalence of poverty is far in excess of their population share (GSS, 2007).

Most Sub-Saharan countries, Ghana inclusive, have not attained the indicators for an effective agricultural revolution, and factor productivity in agriculture extremely lags behind the rest of the world (Diao et al., 2006). This has fuelled growing concerns globally about agriculture's significance to poverty alleviation mainly in rural areas.

Kyeremeh (2014) explained that although portions of Ghana are indeed badly affected by unfavourable natural conditions, pitiable performance in agriculture has been attributed to inadequate investment in infrastructure, institutions and human capital, in addition to attempts to overlook agriculture through isolated industrialisation, mostly to the detriment of agricultural inactivity and deepening poverty. Researchers such as Donald et al. (2007) cited in Kyeremeh (2014) have also recognised that the occupations of deprived rural family units are wide-ranging traversing continents and countries, and within countries. Though some rural households depend on primarily one type of activity, most people now strive to spread their source of revenue base in order to minimise risk.

In relation to the above, Stephen (2001) provides evidence that these rural family units involved in farming activities encounter enormous risks in their earnings process. These threats leave the rural food crop farmers poor, exposed and occasionally deprived. Ghana's family units in rural regions are consequently exposed to these risks since they rely on natural resources, unpredictable rainfall patterns and unreliable weather conditions. These family units are therefore, often harmfully affected by these shocks. The capability of the food-crop subsector to single handedly continue to bear the source of incomes of rural family units is doubtful as reliance on subsistence farming threatens family units exposing them to hostile possibilities which always make them 'mangers of risk' in Ghana (Dary and Kuunibe, 2012; Lay and Schuler, 2008; Tandoh-Offin and Awuse, 2013; Butler and Mazur, 2007).

Therefore, as a result of the above, non-farm alternative income sources such as livestock rearing, petty trading, grasscutter rearing, mushroom production, beekeeping, among others are increasingly becoming important across the rural areas of Ghana. Income gains at the household level seem to be connected with a move towards more non-farming earnings and self-employment livelihood activities (Kyeremeh, 2014).

Such occupation affords vital earnings diversification and provide money at important periods particularly where the threats of agriculture are great and rural investments, credit and insurance systems are ill developed or non-existent (Reardon, 1997). Alternative livelihoods have the potential to absorb surplus labour in rural regions, assist farming family units spread risks, provide more rewarding activities to augment or substitute food-crop earnings, potentially generate income during the minor season and create an avenue to survive when farming fails (Gordon and Graig, 2001).

Small scale farming engages almost about 50% of the populace in Ghana, formally and informally, hence, perceive as a principal economic activity for the rural family, especially the crop subsector, since about 87% to 89% of rural farm families engage in smallholder farming to earn a living (MOFA, 2011; Diao, 2010; Ghana Statistical Service, 2008).

However, the International Fund for Agricultural Development (IFAD, 2011) asserts that small-scale farmers in Ghana's deprived rural areas including the Shai Osudoku District have are not well endowed with assets that would enhance a shift from subsistence farming to modern and profitable agriculture. It should also be noted that, poverty in the Shai Osudoku District is deepest among rural food crop farmers because of the vulnerable nature of their livelihood. A Ghana Statistical Service (2015) report also put the Shai Osudoku District poverty rate at 55.1%, undoubtedly, higher than the national rate of 28.5%. Kyeremeh (2014) asserts that about 77 % of rural poor households in the Asutifi District in the Ahafo region usually depend on a single livelihood activity and this is not different from the district under study. These households therefore find it difficult to avoid, withstand or bounce back during times of stress and shocks or recover from the harmful impacts of adverse events such as drought, pests and disease infestation, flooding or general crop failure among others.

As a result of the above problems, presently, small-scale farming is below its capacity to protect the necessary employment, income, food supply, and thus to reduce poverty among rural households. This situation poses a prolong danger to farmers' source of revenue and incomes. Therefore, there is the need for alternative strategies that will enrich the wellbeing of the rural farmers. The growing consensus is that even though farming continues to play a pivotal role in rural advancement, the advancement of corresponding engines of rural progress should be of paramount concern.

Therefore the question as to whether rural food crop farming alone can help rural farm households to move out of poverty still remains a mystery in the Shai Osudoku district and the study intends to investigate this gap. Hence, the study seeks to lay bare the alternative livelihood opportunities among these rural farmers.

2 Materials and methods

Shai Osudoku District Assembly in the Greater-Accra region of Ghana was the study area. The Greater Accra Region is the smallest of Ghana's 16 administrative regions land area wise, occupying a total land surface of 3,245 sq. kilometres or 1.4% of the total land area of Ghana (GSS, 2010).

The Shai-Osudoku District was created by LI 2137 and is located in the southeastern part of Ghana in the Greater Accra Region. Its total land area is about 721 sq. kilometres. The District was re-demarcated in June 2012 when it was carved out of the Dangme West District. The 2010 Population and Housing Census puts the population of Shai-Osudoku District at 51,913 and of this 48.7% are males and 51.3% are females. The District's population accounted for 1.3% of the Region's population. Again, about 76.7% of the district's population resides in rural communities. The district has about 167 communities with Dodowa as its District Capital (GSS, 2010). Economic activities in the area are the most diversified. The population engage in skilled agricultural, forestry and fishery as their occupation, followed by service and sales, and craft and related trades.

Data was collected using a structured questionnaire. Multi-stage sampling technique was employed to select 150 respondents from the Shai Osudoku district. The Shai Osudoku district was purposively selected due to the intense agricultural activities in the district. Secondly, five major communities namely Dodowa, Ayikuma, Agomeda, Asutsuare and Doryum were purposively selected due to their known high intensive engagement in farming in the district. Considering the sampling frame provided by the Ministry of Food and Agriculture, 30 respondents were picked from each of these communities using the simple random technique to get 150 respondents for the study. According to the central limit theorem, a sample of ≥30 is appropriate for empirical study (Bannor et al., 2020) given in this situation, where the total population of farmers within the district was not immediately obtainable therefore, the sample size of 150 farmers was appropriate for investigation. The Statistical Package for the Social Sciences (SPSS) was used for data analysis. The data was summarised using descriptive statistics such as, tabular description and summary statistics such as percentages and frequencies.

3 Results and discussion

3.1 Socio-economic characteristics of smallholder farmers

The socio-economic characteristics of the sampled respondents examined included age, sex, educational level, marital status and household size. These characteristics are summarised in Table 1 and Table 2 respectively. Majority of the farmers (73%) were males while 41 farmers representing 27% were females. Thus, males are disproportionally represented considering that the most recent census for the area estimates the male population at (49%) against the female (51%) in the Shai Osudoku District (GSS, 2010). This implies that males dominate farming in the district.

Table 1 Personal characteristics of the farmers in the study area

Characteristic	*% (Number)*
Sex	
Male	73 (109)
Female	27 (41)
Age	
<30 years	2 (3)
30–50 years	84 (126)
>60 years	14 (21)
Educational level	
No formal education	56 (84)
Basic education	25.3 (38)
Secondary education	14.7 (22)
Tertiary education	4.0 (6)
Household size	
1–3	24 (36)
4–5	47.3 (71)
6–8	22 (33)
Above 8	6.7 (10)

Source: Authors' own field survey (2019); percentage (frequency)

Table 2 Economic characteristics

Characteristic	*% (Number)*
Primary livelihood activity	
Crop farming	99.3 (149)
Livestock rearing	0.7 (1)
Level of practice of primary livelihood	
Subsistence	88.7 (133)
Commercial	8 (12)
Both	3.3 (5)
Number of years of farming	
1–5 years	1.3 (2)
6–10 years	13.3 (20)
11–15 years	19.3 (29)
>15 years	66 (99)

Source: Authors' own field survey (2019); percentage (frequency)

Ages of respondents were grouped into three categories. Two percent (2%) of the respondents were below 30 years of age, 84% were between 30–50 years and those above 60 years constituted 14%. The results indicate that people aged 30–50 years were mostly involved in farming in the study area. This age range falls within the economically active age group as defined by the Ghana 2010 population and housing census, which is 15 to 64 years (GSS, 2010).

Education plays a crucial role in every economy (Sedgwick, 2000). As a form of human capital, it contributes greatly to enhancing the livelihood of people. Majority (56%) of the respondents have had no prescribed tutoring while just about 4% have schooled up to the tertiary level. This shows that majority of the farmers who were unable to enrol in school or have low level of education took to farming as a source of a livelihood.

It can also be seen from Table 1 that, over 47.3 % of the respondents interviewed have household size of 4–5 persons, which was in line with the district average of 4.4. This appears to be among other reasons why these rural households have taken on multiple livelihoods to improve their income options to cater for their relatively large household sizes.

Table 2 suggests that food crop farming continue to play a key role in the livelihoods of rural family units despite the challenges. Almost all, 99.3% of the respondents surveyed undertook food crop farming as their primary livelihood activity. This could mean that the climatic condition of the district favourably supports a number of crops and vegetables such as maize, rice, cassava, mango, plantain, tomato, garden egg, okro and pepper, and thus making it possible for interested farmers to produce them on regular basis.

Farming is the mainstay of majority of the rural households, therefore, one would believe that it is the most lucrative and that is why most people are involved in it. However, the nature of farming as illustrated in Table 2 does not make it possible for the sector to translate its role into the lives of the people in terms of income poverty. Most of the primary rural livelihood activities and more specifically food crop farming are practiced on subsistence levels. About 88.7% of the respondents interviewed practice their primary livelihood activity that is, farming as a means or basis of securing adequate food for themselves and their families. This situation is because of the competition for land for non-agricultural purposes such as housing and other social institutions in the area as well as the pertaining land tenure arrangements, which works against large scale or commercial farming due to the limited nature of arable lands in the district. As a result, rural households in the Shai Osudoku District are not able to harness fully, their potential in farming to benefit them. Post-harvest losses also could mean that fewer amounts of produce would be left to sell. Again, only 8% of the households practice their livelihood activity on commercial basis as few people have large commercial farms. Majority of them are smallholder farmers cultivating on small subsistence farms. However, 3.3% of these farmers do not only produce to meet home consumption, but also produce for marketing as shown in Table 2.

The number of years of farming correlates with experience. Majority (66%) of respondents have farmed for more than 15 years which indicates that most of the farmers are experienced in farming while just about 1.3% have been engaged in farming within the past 5 years of the study as indicated in Table 2.

3.2 Monthly income from primary livelihood

Since majority (88.7%) engages in subsistence farming, the income gains from their primary livelihoods are comparatively low as shown in Table 3.

Table 3 Monthly income from primary livelihood

Amount/income range (GH₵)	*% (Number)*
10–50	64 (96)
51–100	18.7 (28)
101–150	4 (6)
Above 150	13.3 (20)

Source: Authors' own field survey (2019); percentage (frequency)

Food crop farming is the main source of revenue in the Shai Osudoku District (Table 2). It can be observed that, about 83% of the farmers receive once-a-month income of up to GH₵ 100 (as 64% receive income between GH₵ 10–50 and 18.7% receive between GH₵ 51–100). Most of the households in this category are smallholder crop farmers and this makes their primary livelihood activity a form of 'social investment' as they practice farming to provide food and other necessities for themselves and their families on subsistence basis. Just a few (13%) earn income above GH₵ 150 every month. This low income earned from primary livelihood could be attributed to a number of factors; chief among them was the subsistence nature of farming practiced by the farmers so they produced mainly to feed their households and not much left for sale. Secondly, most of these farmers depended on primary farm tools and lacked resources to cultivate much land. Those who could cultivate reasonable acres were at the mercy of the vagaries of the weather and pests and diseases. In addition, most of the farmers have limited access to ready markets. This therefore buttresses the argument that farmers in the area are the most vulnerable in terms of income poverty. With household's not being able to generate adequate income from their primary occupation, the situation in the long run will affect households' ability to pay their dependents school fees, clothing, health and other household needs if they should continue to live on only their primary occupations. Accordingly, they would also be unable to save part of their earnings against contingencies. This implies, improving livelihoods in the Shai Osudoku District will go a long way to increase food availability and raise incomes of farmers thus, enhancing their living standard.

Table 4 Major problems relating to primary livelihood

Characteristic	*% (Number)*
Problems face in practicing primary livelihood	
Lack of access to credit	52 (78)
Land tenure and use issues	12 (18)
Lack of subsidise inputs	7.3 (11)
Lack of storage facilities	7.3 (11)
Erratic climatic conditions	6 (9)
Pests and diseases	6 (9)
Lack of extension services	4.7 (7)
Low productivity from the livelihood activity	4.7 (7)

Source: Authors' own field survey (2019); percentage (frequency)

3.3 Primary livelihood problems

The major problems mentioned by the subsistence farmers while practicing their primary livelihood activity include the list in Table 4.

More than half (52%) of the respondents cited lack of access to credit as their major problem hindering the practice of their primary livelihood which is mainly farming. Another 12 % complained about the land tenure issues in the district as a bane to their livelihood activity. Within a family set up in the district, land is transferred from generation to generation, of which a member is entitled to a portion, which he/she can pass it on to the next of kin. This type of land tenure system does not promote commercial and even to a large extent subsistence farming in the area. Farmers especially settler farmers would therefore have to undergo difficult processes to acquire portions of land for farming activities on agreed terms. Again, due to the rapid developments in the district, most agricultural lands are being used to construct structures for residential purposes. Lack of inputs (7.3%), lack of storage facilities (7.3%), erratic climatic conditions (6%), pests and diseases (6%), lack of extension services (4.7%) and low productivity from the primary livelihood were the other enumerated challenges facing the respondents.

3.4 Ways to improve primary livelihood

Table 5 reveals the assistance the farmers requested to aid them improve their livelihood activity. Majority (60.7%) of the respondents said if they had access to credit, it would go a long way to help to improve their primary livelihood. Besides credit access, were support in the form of subsidised inputs (12.7%), provision of storage facilities (10%), provision of extension services (8.7%) and provision of a dam (8%).

Table 5 Ways to improve primary livelihood

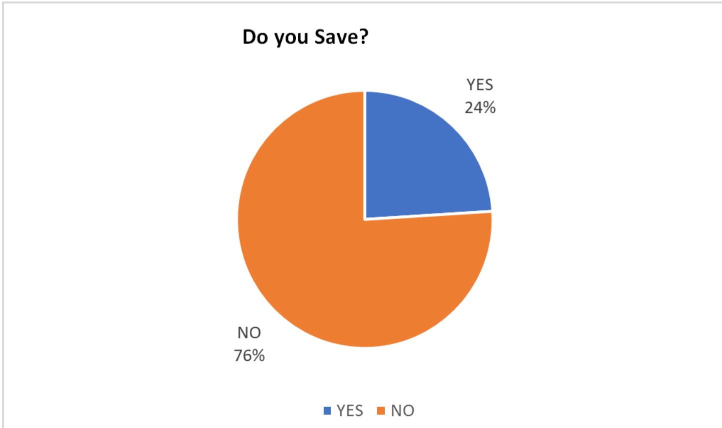
Ways to improve primary livelihood of farmers	*% (Number)*
Access to credit	60.7 (91)
Support in the form of subsidised inputs	12.7 (19)
Provision of storage facilities	10 (15)
Provision of extension services	8.7 (13)
Provision of a Dam	8.0 (12)

Source: Authors' own field survey (2019); percentage (frequency)

3.5 Saving status of farmers

Savings is an aspect of financial service provided by many financial institutions and most financial institutions require clients to save with them before they qualify to access loans from them. Figure 1 shows that, majority (76%) of the respondents do not save compared to (24%) who save. This may account for the reason why most of the farmers do not have access to credit. Savings mobilisation is an important part of most Microfinance Institutions because it serves as collateral for loans and improves financial discipline among inexperienced, first time, small- scale borrowers (Odonkor, 2007 cited in Anang and Owuraku-Sakyi, 2013).

Figure 1 Saving status of farmers (see online version for colours)



3.6 Alternative livelihoods

Due to the problems outlined above (Table 4), the farmers have adopted other complementary livelihood activities as a means of supplementing their revenue.

From Table 6, 43.3% of farm households have embraced livestock rearing, 18% in petty trading, 9.3% in mushroom production, 8.7% in grasscutter domestication (*Thryonomys swinderianus*), 7.3% engaged in cassava peeling, 3.3%in construction work, 3.3% in the use of tricycle for carting goods, 2.7% are involved in fish farming, 6.7% are into edible snail (*Achatina achatina*) farming, 2% in beekeeping and 0.7% were salary workers. It can be inferred that, most of the additional livelihoods practiced by the respondents are rural and natural resource based. For example, livestock rearing, edible snail farming and mushroom (*Pleurotus ostreatus*) production all depends on forest products with respect to their production. This also goes to support the argument that livelihoods are largely influenced by the environment (Adams and Mortimore, 1997).

Table 6 Distribution of alternative livelihoods by households

Alternative livelihoods by farm households	*% (Number of farmers)*
Grasscutter domestication	8.7 (13)
Cassava peeling	7.3 (11)
Mushroom production	9.3 (14)
Snail production	1.3 (2)
Petty trading	18 (27)
Fish farming	2.7 (4)
Bee keeping	2 (3)
Livestock rearing	43.3 (65)
Salary work	0.7 (1)
Construction work	3.3 (5)
Use of tricycle to carry load	3.3 (5)

Source: Authors' own field survey (2019); percentage (frequency)

Farmers in the district based on their 'assets' have expanded their income options and among the motives supporting their need to embrace alternative source of revenue are shown in Table 7. Majority (65.3%) of the respondents representing 98 farmers said they adopted their alternative livelihood activity due to the high returns and economic sustainability it provided them whiles just about a quarter, 25.3% said due to the ease of adoption. This is because most of the alternative livelihoods are agriculture-related activities and it was therefore less difficult for the farmers to adopt. A few (8.7%) indicated that they adopted this livelihood due to the less space required. This may be because of the pressure on land in the district for residential and not for agricultural purposes, so any alternative livelihood activity, which the farmers engage in, should require less space for its construction.

Table 7 Reasons for adoption of alternative livelihoods

Reasons for adoption of alternative livelihoods	*% (Number of farmers)*
Due to high returns and economic sustainability	65.3 (98)
For home consumption	0.7 (1)
Ease of adoption	25.3 (38)
Less space required for adoption	8.7 (13)

Source: Authors' own field survey (2019); percentage (frequency)

Table 8 Sources of start-up capital for undertaking alternative livelihood activity

Sources of start-up capital for undertaking alternative livelihood activity	*% (Number)*
Personal savings	20 (30)
Bank loan	4 (6)
Microfinance Institution	5.3 (8)
Personal sources	60 (90)
No start-up capital required	10.7 (16)

Source: Authors' own field survey (2019); percentage (frequency)

Table 9 Monthly income from alternative livelihood

Income range (GH₵)	*% (Number)*
10–50	3.3 (5)
51–100	6 (9)
101–150	32.7 (49)
Above 150	58 (87)

Source: Authors' own field survey (2019); percentage (frequency)

3.7 Sources of start-up capital for alternative livelihood

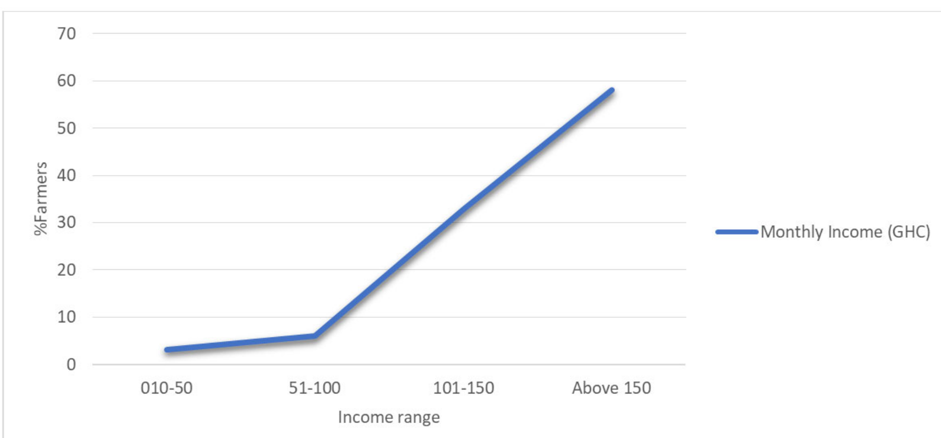
In livelihood investigation, financial resource appears to be the scarcest and it is thus indispensable to study how farmers were able to organise this resource to launch their alternative means of support (Kyeremeh, 2014).

From the study, farmers began their alternative occupations with funds from diverse sources. Approximately 60% of respondents started their alternative means of support with money from personal sources. Only 20% used their personal savings and this could be explained by their low savings capability ensuing from their comparatively low proceeds from primary employment. The personal sources include soft loans from relatives and market women who purchase their produce. Due to this, more often than not, these market women cheat the farmers when they come to buy their produce. Just about 10.7% representing 16 respondents required no start-up capital for their alternative livelihood. These respondents were mainly involved in cassava peeling and construction work, which required no start-up capital. It can be concluded from the above that, to reduce rural poverty especially in the Shai Osudoku District, financial support to the rural poor in terms of undertaking alternative livelihood activity is very crucial.

3.8 Monthly income from alternative livelihood

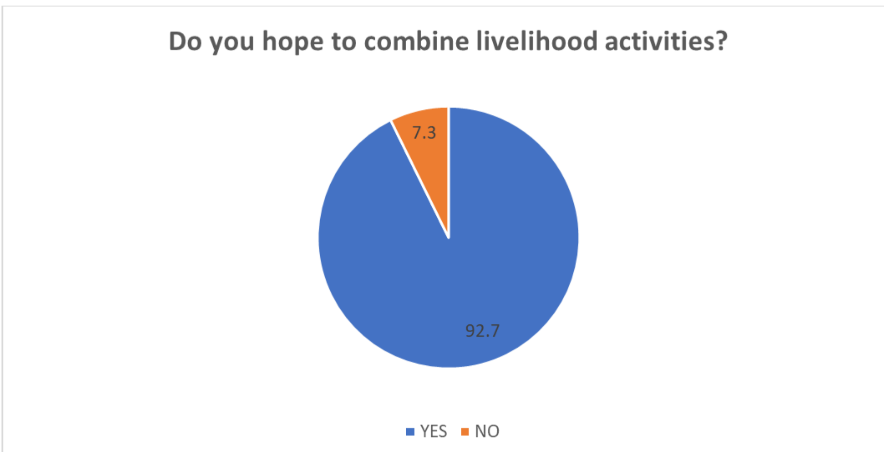
More than half (58%) of farmers practicing alternative livelihoods earn income of more than GH₵ 150 every month. Within this income category, majority are livestock rearers, petty traders, mushroom farmers and grass cutter farmers. About 32.7% of the respondents earn between GH₵ 101–150 and only 3.3% of farmers earn income of between GH₵ 10–50. It can therefore, be concluded that, the alternative livelihoods have the potential to generate the required earnings for farmers practicing them if properly done and maintained. The alternative livelihood generated higher incomes compared to the primary livelihood largely due to the high returns on such activities because such activities were in high demand in the communities. Again, less space was required to undertake such engagements so farmers did not have to spend much on such activities coupled with the reduced natural risks associated with such activities. The farmers' income distribution from the alternative livelihoods is graphically shown in Figure 2.

Figure 2 Monthly income (GH₵) from alternative livelihoods (see online version for colours)



It is worthy of note that, 92.7% of farmers hope to combine their primary livelihoods with the alternative livelihoods while the remaining 7.3% stated otherwise as demonstrated by Figure 3. Farmers willing to combine multiple livelihoods were of the view that, relying on a single avenue of revenue generation from either their primary or alternative livelihood only will not be sufficient to effectually, sustain their lives. They ultimately argued that, they would hold on to farming while simultaneously undertaking their alternative occupations in order to enjoy manifold benefits. The remaining 7.3% who do not hope to combine both their existing and alternative livelihoods indicated that they were more likely to drop their primary livelihood in order to concentrate on the alternative livelihoods in the future, if incomes accruing from their alternative livelihoods continue to appreciate for the next few years.

Figure 3 Combining primary and alternative activity (see online version for colours)



3.9 Comparison of income from primary and alternative livelihood

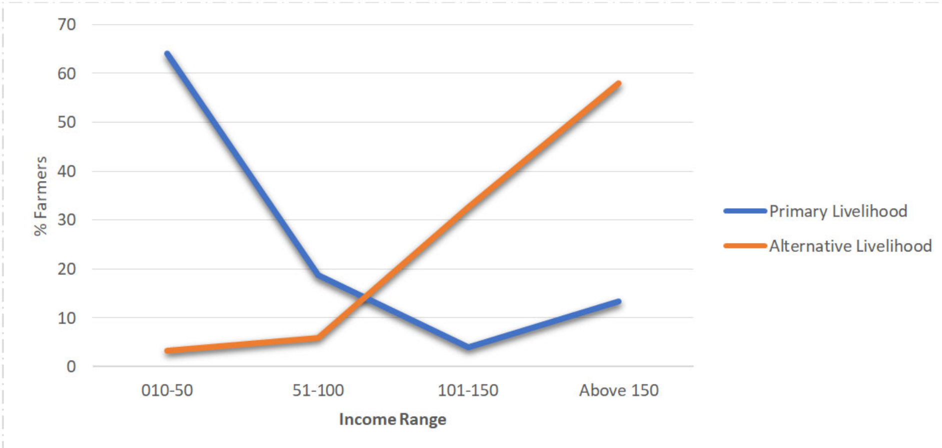
In another analysis, the income generation capacity or the economic importance of the primary and the alternative livelihoods of farmers have been compared in Table 10 and Figure 4.

Table 10 Comparing income from primary and alternative livelihood

Amount/income range (GH₵)	*Primary livelihoods % (number)*	*Alternative livelihoods % (number)*
10–50	64 (96)	3.3 (5)
51–100	18.7 (28)	6 (9)
101–150	4 (6)	32.7 (49)
Above 150	13.3 (20)	58 (87)

Source: Authors' own field survey (2019); percentage (frequency)

Figure 4 Primary and alternative livelihoods compared (income: GH₵) (see online version for colours)



From Table 10 and Figure 4, in terms of primary livelihoods, majority (64%) receive monthly income of only GH₵ 10-50 whereas, for the alternative livelihoods, the majority of the households (58%) obtain monthly income above GH₵ 150. The economic sustainability of the alternative means of support presented in Table 7 thus, reinforces the proclamation and desire for rural family units to explore and pool more income activities to improve their lives via various revenue sources.

From Table 11 farmers recorded increment in incomes as compared to either their primary or alternative livelihood alone. This to a large extent can enable farmers to pay for dependents' education (both covert and overt cost), to develop their human capital and reduce poverty in the long-run, deliver improved accommodation conditions, afford improved health hence, improve their mental, emotional and physical wellbeing which will subsequently boost their productive capability.

Table 11 Combined income of farmers (primary and alternative livelihoods combined)

Income range (GH₵)	*% (Number)*
100–200	2 (3)
201–300	10 (15)
301–400	17 (26)
401–500	28 (42)
Above 500	43 (64)

Source: Authors' own field survey (2019); percentage (frequency)

From Figure 5, the income gains of farmers are high and this can be attributed to the share of income from the alternative livelihoods (Table 9) as compared to that of the primary livelihoods (Table 3). The greater majority of farmers, 28% and 43% currently receive income between GH₵ 401–500 and above GH₵ 500 respectively every month. Even the minority few (2%) earning between GH₵ 100–200 are likely to earn higher if the problems encountered in their primary livelihoods (Table 4) were addressed. It is therefore clear that combining primary and alternative livelihoods under the study as demonstrated by farmers in the Shai Osudoku District can at least contribute to rural income growth.

Figure 5 Combined income (primary and alternative: GHȻ) (see online version for colours)

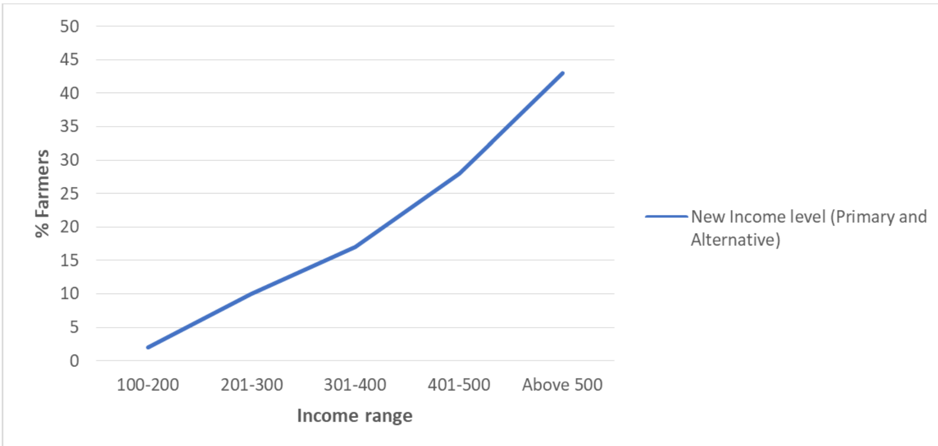


Table 12 Livelihoods and aggregate income analysis of farm households

Primary livelihoods (A)	*Average monthly income (GHȻ)*	*Alternative livelihoods (B)*	*Average monthly income (GHȻ)*	*Total average income (GHȻ)*	*Impacts of increased income*
Crop farming (A)	94	Livestock rearing (B1)	300	A + B1 = 394	Increased purchasing power
		Petty trading (B2)	180	A + B2 = 274	Ability to pay children's school fees (covert and overt costs)
		Mushroom Production (B3)	370	A + B3 = 464	
		Grasscutter domestication (B4)	550	A + B4 = 644	Ability to provide better shelter or housing
		Cassava peeling (B5)	130	A + B5 = 224	Ability to access adequate healthcare
		Beekeeping (B6)	350	A + B6 = 444	
		Snail farm (B7)	240	A + B7 = 334	
		Others (B8):	260	A + B8 = 354	
		Salary work			
		Fish farming			
		Construction			
		Use of tricycle to cart goods			

Source: Authors' own field survey (2019); percentage (frequency)

3.10 Average income and livelihood combinations

The average revenue of farmers and the livelihood activity from which such revenue is generated have been explained in Table 12. The study showed that, farmers presently earn a pooled revenue from their primary livelihoods (labelled A) and alternative livelihoods (labelled B1-B8). Therefore, a food crop farmer (A) previously earning an average monthly income of GH₵ 94 can now earn an additional income of GH₵ 300 from Livestock rearing (B1), making a total of GH₵ 394 (average income of A + average income of B1 = GH₵ 394). Again, a food crop farmer (A) earning an average income of GH₵ 94 after adding petty trading (B2) can also earn an average of GH₵ 274 every month (A+B2: GH₵ 94 + GH₵ 180 = GH₵ 274). In addition, a food crop farmer (A) earning an average income of GH₵ 94 after adding an additional income of GH₵370 from Mushroom production (B3) can now earn an average monthly income of GH₵464. Furthermore, a food crop farmer (A) with an average earnings of GH₵ 94 is capable of earning an extra income of GH₵ 550 from grass-cutter domestication (B4), raising his/her new income level to GH₵ 644 every month (That is: A+B4 = GH₵ 644). Such improved income levels of farmers' households, the survey revealed have both direct and indirect impact on household consumption, education, health and other living conditions.

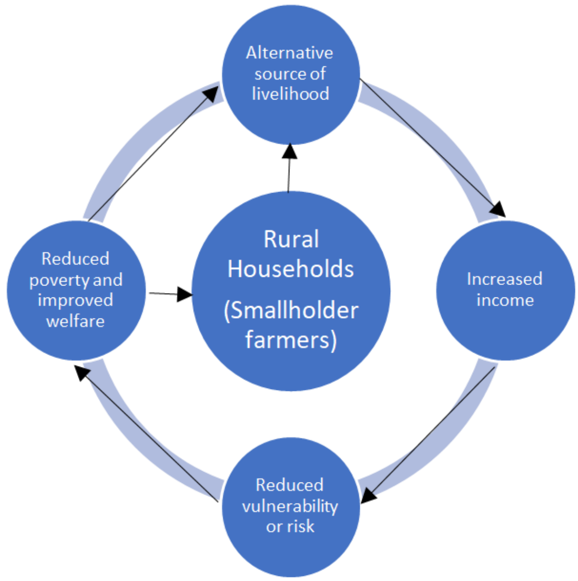
3.11 Impact of increased income on living conditions of farmers

The improved income levels of households (Table 12) have both direct and indirect impact on household consumption, education, health and other living conditions. Farmers are capable of paying their educational expenses such as textbooks and school uniforms, and hence, their dependents are more probable to attain higher height in education. Again, farmers presently have the capacity to attend hospital and provide food needed by the family and are therefore, not likely to suffer from malnutrition, experienced by other family units trapped in income poverty. This has helped to reduce vulnerability of crop failure. Farmers in the Shai Osudoku District who were dependent on 'single' livelihoods and found it difficult to withstand or avoid livelihood risks such as crop failure due to drought or pest and disease infestation among others, have adopted alternative livelihoods that would enable them to cope during 'hard times' especially when prices for agricultural produce fall. This phenomenon seems to have considerably reduced the level of uncertainties, which hitherto surrounded their livelihoods, and thus making them less vulnerable and poor.

The present study did not openly quantify the level of wellbeing of farmers or the depth of poverty that has been reduced among the farmers concerned but alternative livelihoods have helped to reduce poverty, improve welfare of farmers through viable and decent employment, better income and reduce weakness among farmers. The interactions between these welfare pointers deliberated above and how they have influenced the lives of farmers concerned have been diagrammatically, presented in Figure 6.

From Figure 6, farmers have developed different sources of employment through the adoption of various means of support approaches, occasioning the rise of household earnings (Figure 5) and thus decreasing the risk associated with their revenue processes hence, enhancing their standard of living. It is anticipated that these benefits would eventually and successfully transform the living standards of the farmers many years to come, thereby, helping to alleviate poverty and enhance wellbeing.

Figure 6 The contribution of alternative rural livelihoods towards the development of farmers in the Shai Osudoku District (see online version for colours)



4 Recommendations

The major problems raised by the farmers regarding their primary livelihoods include; lack of access to credit, land tenure and use issues, lack of subsidised inputs, lack of storage facilities, erratic climatic conditions, pests and diseases, lack of extension services and low productivity from their livelihood activities.

The management of the financial institutions should provide loan facilities, which the farmers perceive to be more flexible to enhance their accessibility, because some of the market women who they perceive give them flexible loans cheat them when it comes to marketing of their farm produce. Since they provide the farmers with these loans to start their farming, they buy their produce cheaply and even pay the farmers at a time convenient to them and this erode the working capital and profit margin of the farmers.

The Shai Osudoku District is endowed with fertile Agricultural lands but the activities of real estate developers are reducing these arable lands for residential purposes. The government through the District Assembly should acquire or reserve some parcels of land for Agricultural purposes and clamp down on the activities of real estate developers. To bypass the complex customary land tenure relations in the district, Government should continue to increase the investment in the Agriculture Improvement and Land Access Programme to enable food crop farmers affected by loss of land for residential purposes to regain access to arable land.

The government through the District Assembly should provide the farmers with subsidised inputs and on time to reduce the incidence of pest and disease that farmers struggle to control. Currently, the government provide fertilisers to the farmers at half the prevailing price on the open market through planting for food and jobs programme, this arrangement should be extended to cover other inputs to enable the farmers' easy access to them.

It is highly recommended that, the Ministry of Food and Agriculture (MOFA) should recruit adequate extension officers. They should be well resourced to provide education to the farmers on good agronomic practices since the district is one of the largest in the Greater Accra Region in terms of land size though some of the communities are wide apart.

Again, most of the alternative livelihoods in the study area are natural resource based. Therefore, attempts should be made by the Shai Osudoku District Agricultural Development Unit to initiate a study into the environment and resource base of the district and develop more sustainable and natural resource based livelihoods to enhance the living conditions of rural farm households. In other words, there is the need for the Shai Osudoku District Assembly through the Rural Enterprise Project to undertake careful studies into the economy of the area to develop more rural friendly livelihood activities to cushion the rural poor, as the future of the primary livelihood look more uncertain. From the study, the particular alternative rural livelihoods, which benefit the farmers in the district, include grass cutter farming, mushroom production, beekeeping, livestock keeping, fish farming, construction work and use of tricycle to cart goods. These should be promoted in the district.

Finally, rural livelihood in the study area largely depends on dangerous balance between agricultural and non-agricultural sources of income. To achieve considerable gains in poverty alleviation, employment and risk reduction, it is imperative for the regime through its devolved departments and agencies like Community Development Department, National Entrepreneurial Innovation Plan (NEIP), Ghana Youth Employment and Entrepreneurial Development Agency (GYEEDA), Social Investment Fund (SIF) among others to come to the aid of both agricultural and non-agricultural activities.

5 Conclusions

This paper assessed the livelihood opportunities in the Shai Osudoku district. The findings of the study showed that food crop farming constitute the major livelihood option for rural households in the Shai Osudoku District since almost all, 99% of the family units were involved in this activity (Table 2) and this was obviously not a variation from what exists in the district.

As indicated in Table 2, food crop farmers are able to 'pair' their activities with other additional livelihoods (Table 6) without abandoning their primary livelihoods. Again, about 93% (Figure 3) also hope to combine or undertake multiple income sources. Therefore, by their nature, rural livelihoods from the study are 'complementary' as most livelihoods within the rural area can be undertaken concurrently, and this buttresses the claim in this study that single income sources for rural households (mainly in the area of food crop farming) appears not to be 'sufficient' and hence the need for combination of multiple or additional livelihoods. Exploring additional revenue generation opportunities could provide a conduit out of poverty for the rural poor farm family units in the Shai Osudoku District as farmers who have taken advantage (alternative opportunities) are now benefiting from secure employment, increased earnings and reduced vulnerability.

The income levels of farmers from their primary livelihood activities are comparatively low with majority, 82.7% earning GH₵100 or less every month (Table 3) compared to fewer farmers, 13.3% earning above GH₵ 150. This in some way makes rural livelihoods especially food crop farming a less economically viable activity by nature and usually undertaken to provide sustenance for households.

However, more than half of farmers (58%) earn above GH₵ 150 every month from their alternative livelihoods (Figure 3) unlike the case of the primary livelihoods. The importance of the selected livelihoods under study was made even clearer after comparing the incomes from farmers' primary and alternative livelihoods as presented in Figure 4. Again, farmers who in the long-run decided to undertake their primary and alternative livelihoods concurrently have now seen a rise in the level of their income (Table 11 and Figure 5) and accordingly contributing to the reduction of income poverty among farmers.

It is also striking that, although the alternative livelihood activities adopted by farmers to enhance their livelihood yields more income or economic benefits than their primary livelihoods, (Table 3, Figure 2 and Figure 4) in the long run, care should be taken not to completely replace or scrape off the primary source of livelihood, because combined with the alternative livelihood, both yield higher income.

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Appendix

Operational definitions

- Subsistence farming: This term refers to when farm output is targeted to survival and is mostly for local requirements with little or no surplus trade with land holdings of less than 2 hectares (5 acres).
- Commercial farming: This term refers to when farm output is targeted not only for local requirements but also for trade with land holdings of 2 hectares and above.
- Income poverty: This is defined as poverty in monetary terms, using levels of income or consumption to measure poverty and defining the poor by a headcount of those who fall below a given income or consumption level or 'poverty line'.
- Primary livelihood: In this study refers to activities and strategies that are usually implemented by farmers within a broader environment of making a living.